ELEMENT 6

The process for establishing and assuring adequate implementation of new and revised Water Quality Standards, including schedules of compliance under 303(c) of the Clean Water Act

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Summary *– The state's Water Quality Standards (WQS) are the basis for its water quality program. Water Quality Standards and technology-based limits form the basis for water quality pollution control permitting. Designated use(s) of the waters, criteria to support that use(s) and general criteria including anti-degradation policies are the infrastructure for the standards. Water Quality Standards for designated uses for all classified water bodies in Missouri set maximum allowable concentrations for 110 chemicals as well as other criteria such as dissolved oxygen. Designated use(s) may be changed based upon use attainability analysis.*

The state's Water Quality Standards contain both narrative criteria that apply to all waters and specific criteria adopted from the U.S. Environmental Protection Agency (EPA) for the protection of all aquatic organisms in classified waters. Missouri complies with Section 307(a) and Section 304(a) of the Clean Water Act, adopting numeric criteria for toxic pollutants if the presence of these substances is likely to affect the water body's use.

The anti-degradation requirement for Missouri is built upon EPA minimum requirements to conserve, maintain and protect existing uses and water quality. Variances from the Water Quality Standards provide time-limited alternatives to changing the standard temporarily, based on the assurance that the standards will be attained. The implementation of Water Quality Standards is consistent with the EPA's desire for an integrated strategy for water quality control.

Section 303 of the Clean Water Act includes the requirement that Water Quality Standards be reviewed once for each three-year period. The Water Pollution Control Program completed a review of the standards beginning in 1968 and continuing through 1973, 1977, 1981, 1984, 1989, 1994 and 1996. The department is proceeding with an update in 2001 based in part on the EPA reviews and the standards changes completed in 1994 and 1996.

Water Quality Standards

There are several major elements that are included in the Water Quality Standards process. Waters are given designated uses to protect the public's health, preserve the public's use and recreation and protect fish and wildlife. These uses may already exist or they may be goals that can be attained in the future with improved water quality.

Uses that are already attained are referred to as designated uses. States define their Water Quality Standards in terms of these designated uses or goals and in terms of scientifically determined criteria that limit pollutants to the level needed to protect the designated use.

Water Quality Standards contain designated use(s) for classified waters and criteria to protect that use(s). Water Quality Standards also contain an anti-degradation requirement.

Missouri Water Quality Standards are the basis for the state's water quality-based program. The Clean Water Act provides the basis for two kinds of pollution control through the permitting and Water Quality Standards requirements. There are also provisions under the Clean Water Act for technology-based limits and best available treatment technology. This type of treatment technology is considered economically achievable for industry and for publicly owned treatment works. Applications of any technologically based controls that do not result in attaining Water Quality Standards require the development of more stringent effluent limitations to meet the Water Quality Standards.

Water Quality Standards are provisions of state and federal law. Standards consist of a designated use or uses for the water bodies in the United States and the water quality criteria for such waters based upon such uses. Water quality criteria are elements of Water Quality Standards adopted by a state under section 303(c) of the Clean Water Act, which describes the quality of water that will support a particular use. Criteria are defined as elements of state Water Quality Standards, expressed as constituent concentration levels or as narrative statements, and represent a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

Congress has maintained the concept of Water Quality Standards both as a mechanism to establish goals for the nation's water and as a regulatory requirement when standardized technology controls have been inadequate for point source discharges and/or nonpoint source controls.

To summarize:

- Water Quality Standards form the cornerstone of the Clean Water Act. Missouri sets standards for waters within its jurisdiction. Water Quality Standards define a use for a water body and describe the specific water quality criteria (expressed in numeric or narrative form) to achieve that use. Standards also contain anti-degradation requirements designed to protect the improvements in water quality.

- A Water Quality Standard establishes the water quality expectations for a particular water and is the basis for establishing water quality based treatment controls and strategies beyond the technology based levels of treatment required under the Clean Water Act since 1987.

- Section 303(c) of the Clean Water Act requires states to review the standards at least once each three-year period for the purpose of reviewing applicable Water Quality Standards and/or adopting new standards. At least one public hearing must be held on proposed changes.

- The Water Quality Standards Act requires states to adopt numeric criteria for toxic pollutants on the Section 307(a) toxic pollutant list when Section 304(a) EPA criteria recommendations are available and where the discharge of these pollutants could reasonably be expected to affect designated use.

Review and Revision

States identify additions or revisions necessary to existing standards on new or revised water quality criteria, the 305(b) water quality inventory report to the U.S. Congress, other water quality monitoring data, previous Water Quality Standards reviews, or requests from industry, environmental groups or the public. Water Quality Standards reviews and revisions may take several forms, including additions to and modifications in uses, criteria, the anti-degradation requirements or other general policies.

The general provisions reviewed in the Water Quality Standards revision process include; use designations, criteria review, anti-degradation policy, implementation, variances, low flow provisions, mixing zone provisions and Clean Water Act reports, including 305(b), 304(l), and 303(d). Also considered are the construction grants priority lists, major permit actions, waters not meeting clean water act goals, unclassified water bodies, and the public input. Standards revised through public input are all given appropriate consideration prior to the submission of the proposed changes for EPA review and public hearing(s).

Designated Uses(s) Presumed to Currently Exist

Missouri classified waters are protected under federal and state laws for various designated uses. The classified waters of Missouri, all permanently flowing streams or streams with permanent pools, set maximum allowable concentrations for 110 chemicals. The designated uses include wildlife watering, fish consumption by people and protection of aquatic life and livestock. Waters classified for drinking water supplies have maximum allowable concentrations for additional chemicals in the standards with particular concern for human health. Waters protected for whole-body-contact recreation, such as swimming or water skiing, also have a maximum allowable bacteria standard. Beneficial and individual use support, the pollution source and the listing of contaminants for Missouri streams is contained within the tables presented at the end of this element.

Narrative Criteria

Missouri's Water Quality Standards contain general criteria also referred to as narrative criteria. These criteria are not numbers but general statements about the state's expectations for waters of the state. Criteria may be modified or expanded as additional information is developed or as needed to define narrative criteria for particular situations or locations. Water Quality Standards require waters to be free of objectionable odors, color, turbidity, floating materials or bottom deposits and free of conditions harmful to aquatic life, such as high water temperature, low dissolved oxygen or chemical toxicity. Importantly, these standards apply not just to the classified waters but to all waters of the state, including the small intermittent streams that carry water only during and shortly after rain or snow melt events.

Numeric Criteria

In general the program adopts EPA numeric criteria, usually expressed as maximum concentrations of individual pollutants. The creation of EPA's numerical national water quality criteria for the protection of aquatic life may be adopted into state standards based on the basis of recalculation procedures. General and site-specific criteria are discussed in the department's

rules. Site-specific alternative criteria for human health, i.e. fish consumption are allowed. The designation of site-specific criteria must follow an established variance request process.

Numeric criteria are expressed as chemical concentrations or conditions (such as pH or turbidity) in water. The criteria are created to protect designated uses. Concentrations of chemicals or other pollutants are typically expressed as a weight measured per liter, such as micrograms per liter or in milligrams per liter (one milligram equals 1000 micrograms). An example of a numeric criterion is dissolved oxygen $\geq$ 5.0 mg/L for certain waters. This means that the amount of oxygen dissolved in the water should be equal to or greater than 5 milligrams per liter.

An important consideration in future criteria and standards development will be the conduct of the consultation provisions of the Endangered Species Act and the implementation of any revisions to standards resulting from those consultations.

Nutrient Criteria

Nutrient criteria are numerical values for nutrients that describe expected conditions to support an aquatic community living in waters designated for aquatic life use. They are based on reference conditions and include parameters for total ~~for~~ phosphorus, total nitrogen, algal chlorophyll and turbidity. EPA is coordinating the development of nutrient criteria with states, and these criteria are expected to be adopted into state water quality standards over the next three to five years.

Biological Criteria

Biocriteria are numerical values or narrative expressions that describe the expected reference biological integrity for aquatic communities living in waters designated for aquatic life use. Adverse and multiple water quality impacts to resident biota over time assist in the detection of water quality impairments from both known and unknown causes. Biological standards criteria based on development of macro-invertebrate criteria for wadeable/perennial streams will be proposed to the Clean Water Commission for incorporation into the Water Quality Standards during the current revision process for the standards.

Implementation of Water Quality Standards

The Clean Water Act and EPA regulations require the use of an "integrated" strategy to achieve and maintain the fish and wildlife propagation beneficial use. This chemical-specific approach can deal with background toxicity, but the whole-effluent approach cannot. The whole-effluent toxicity approach best assesses the impact of a mix of toxic substances in an effluent. The chemical-specific approach would best assess a pollutant load's impact relative to other sources or background levels. For example, a maximum effluent concentration limit of lead may be set considering dilution and background lead levels in the receiving water. The numeric lead limit may be supplemented by a whole-effluent toxicity test, which would assess the toxicity of any unknown substances and other pollutants acting in conjunction with lead.

Water Quality Standards: Identification of Functional Criteria

Missouri's Water Quality Standards efforts identify the overall functional criteria that integrate water pollution control requirements into the following framework.

- Maintaining a continuing planning process under Clean Water Act section 303(d)(4)

- Setting and revision of standards for state water bodies
- Water quality monitoring to provide the basis for water quality based decisions
- Water quality assessments to determine attainment of designated uses
- Preparing 305(b) reports and 303(d) lists that document the condition of the water
- Calculating Total Maximum Daily Loads, waste load allocations for point sources and load allocations for nonpoint sources
- Developing and implementing the Clean Water Act section 319 program for non-point sources
- Decisions involving Clean Water Act section 401 certifications of federal permits
- Issuing NPDES permits for all point sources written to meet the applicable Water Quality Standards

** Water Body Classifications are found in Missouri Department of Natural Resources rule, 10 CSR 20-7.031 Water Quality Standards.*

Classifications for Streams and Rivers Only Include:

U: Unclassified, does not retain permanent pools that support aquatic life in dry periods
C: Intermittent, retains permanent pools that support aquatic life though flow may cease in dry weather
P: Permanent, sustained flow throughout drought periods

Classifications for Lakes Include:

Class L1: Lakes used for public drinking water supply
Class L2: Major reservoirs
Class L3: Other Lakes
Class P: Streams that maintain permanent flow even in drought periods
Class P1: Standing-Water reaches of Class P Streams
Class C: Streams that may cease flow in dry periods but maintain permanent pools which support aquatic life

Classifications for Wetlands Include:

Class W: Wetlands that are waters of the state that meet the criteria in the Corps of Engineers Wetlands Delineation Manual.

Why States Review Standards Every Three Years

Standards are reviewed because scientific and technical data may be available that was not available in the past. Additionally, Missouri reviews standards for water segments where more stringent water quality effluent limits are necessary to meet Water Quality Standards and/or where designated uses, special categories or other standards criteria change.

Use Attainability Analysis

Missouri has developed its own use classification system based on the generic uses cited in the Clean Water Act. Designated use may be changed based upon a use attainability analysis. The analysis determines the proper use of a water body and is a multi-step scientific assessment of the physical, chemical, biological and economic factors affecting the attainment of the use. An

existing use, one that has been met or attained, may not be changed unless uses are added which require even more stringent criteria.

Several factors may prevent waters from attaining the designated use associated with it. Some of these are naturally occurring pollutant concentrations; natural, intermittent or low flow water levels; dams or other diversions or physical conditions that impede water quality; and controls more stringent than required under Section 301(b) and Section 306 of the Clean Water Act. In general, if a use is attainable, it may not be removed unless substantial and widespread impact is expected.

When the U.S. Environmental Protection Agency (EPA) Region 7 reviews Missouri Water Quality Standards they target waters affected by changes. Missouri's impaired waters are listed in compliance with 303(d) requirements under the Clean Water Act.

Clean Water Act: Section 304(a) Criteria Recommendations Provide Assistance in Setting Water Quality Standards

States are required to adopt numeric criteria for toxic pollutants listed under section 307(a) of the Clean Water Act for which section 304(a) criteria have been published, if the presence of these substances is likely to affect the water's use. In addition to recently published Section 304(a) criteria recommendations, standards are also reviewed due to new information on existing water quality and pollution sources that may become available.

These Section 304(a) criteria recommendations published by the EPA are based on the latest scientific information available on the effect of a pollutant on human health and aquatic life. Section 304(a) criteria are actually guidance documents used only to assist states in setting Water Quality Standards. Human health criteria provide guidelines that specify the potential risk of adverse effects to humans due to substances in water. Aquatic life criteria are designed to protect all aquatic life, including plants and animals. Missouri uses EPA criteria as a basis for developing Water Quality Standards, and EPA water quality criteria under section 303(e) are also elements of Water Quality Standards that Missouri adopts in its water quality regulations. Criteria describing water quality for a particular use adopted and promulgated by the Clean Water Commission are expected to protect water quality for the designated use for surface waters in Missouri.

For review of derived numeric criteria, other than 307(a) toxic pollutants criteria (toxic and pretreatment effluent standards) resulting from the state's procedure, the EPA focus is on the adequacy of our data rather than the calculation method.

Anti-degradation

EPA sets minimum requirements for state anti-degradation that should conserve, maintain and protect existing uses and water quality. The department Water Quality Standards state that "for all waters of the state, if existing water quality is better than applicable water quality criteria established in these rules (i.e. 10 CSR 20-7.030 Water Quality Standards) that existing quality shall be fully maintained and protected." Water quality may be lowered only if the Clean Water Commission finds, after full satisfaction of the inter-governmental coordination and public

participation requirements, that the lowered water quality is necessary to allow important economic and social development in the geographical area in which the waters are located.

Central to water quality anti-degradation measures are Clean Water Act provisions requiring states to review and update their Water Quality Standards as often as needed. The implementation of revised standards can affect the development of Total Maximum Daily Loads. The issuance/re-issuance of National Pollutant Discharge Elimination System permits can impact on area-wide treatment plans where changes to standards can influence the environmental and economic considerations in existing plans for wastewater treatment and disposal.

The Missouri anti-degradation requirements found in the Water Quality Standards rule contain these essential levels of protection; 1) for the public health – maintaining the level of water quality necessary to protect the existing use as well as the level of water quality existing in stream water uses; 2) existing water quality must be maintained when it is better than what is achieved through applicable water quality criteria; and 3) a listing of general water quality criteria that are applicable at all times in all the waters of the state including mixing zones.

Whenever water quality is not protective of the designated use for a water body, that water body is designated as water quality limited. A Total Maximum Daily Load program is a program of special, intensive and focused strategies for reducing pollution and bringing 303(d) listed waters back into compliance with Water Quality Standards. The use of Total Maximum Daily Load programs minimize the effects of discharges on water quality by tailoring the pollutants loads to the water body's ability to naturally assimilate pollution sources, resulting in minimal degradation to the environment.

Basin planning, nonpoint source planning, watershed monitoring, assessment planning and geographical information systems planning and modeling all support the anti-degradation concept. All of these activities taken together help the state achieve a more effective watershed approach to water quality management while ensuring minimum degradation to the environment.

Variances

An alternative to downgrading or removing a use is to allow temporary exceedance of a standard by a permit variance; such a variance must be time constrained by state law, Section 644.061 RSMo. The Clean Water Commission must approve such permit variances.

Because a variance is only a temporary change, it provides an alternative to a standard revision. However, to grant a variance there must be assurance that further progress will be made to improve water quality, and thereby attain the standard. The EPA has a chance to approve the variance when it is included as part of the Water Quality Standards. It is subjected to public review. A variance is granted if it's demonstrated that meeting the standard is not feasible due to the presence of any of the same conditions as if the state were removing a designated use, (see Section 131 of the Clean Water Act and Chapter 7 of department rules). Existing uses must be fully protected.

Mixing Zone

The state will establish mixing zone allowances, according to the Clean Water Act. Mixing zones are areas where less stringent criteria may apply, though mixing zones may not apply to certain bio-accumulative, persistent, carcinogenic, mutagenic and or teratogenic pollutants. Missouri allows mixing zones. The mixing zone's initial dilution limits will normally be based on streams at the seven-day Q_{10} low flow. (Refer to 10 CSR 20-7.030 Water Quality Standards). General requirements for mixing zones are found in the Water Quality Standard's rule. The requirements take into consideration location, size, shape, outfall design and in-zone water quality and are clearly specified for site-specific permits.

Economic Impacts

Evaluations necessary for economic impacts are site-specific, addressing specific conditions in an affected community. Evaluations occur as a result of the public and private fiscal impact analysis that is a required part of the rulemaking process in Missouri.

Site-Specific Guidelines

EPA's site-specific criteria are used by Missouri to set Water Quality Standards and/or water quality based effluent limits. Site-specific alternative criteria for human health or fish consumption may be allowed but must follow the established variance request process in the Missouri Clean Water Law, Chapter 644.

Schedules of Compliance

Compliance with new or revised National Pollutant Discharge Elimination System (NPDES) or Missouri operating limitations, based on criteria in the rules, must be met no later than three years from the date of permit issuance and with all deliberate speed, according to Missouri's Water Quality Standards. Schedules of compliance within the permit allow facilities a reasonable time to make treatment modifications and/or retool in order that new Water Quality Standards criteria may be met in their effluent.

Public Involvement

The Water Pollution Control Program completed a review of Water Quality Standards beginning in 1968 and continuing through 1973, 1977, 1981, 1984, 1989, 1994 and 1996.

The staff usually begins the review process by soliciting agencies, such as the Missouri Department of Conservation, for input on updating the beneficial-use designations of individual waters such as new water-supply lakes or streams found to be used for fishing or swimming. EPA Region 7 is contacted for updated national numeric criteria. Staff review any prior EPA recommendations for correcting deficiencies in Water Quality Standards. To date, EPA has never promulgated a federal standard for Missouri.

In the review process, the staff produces an initial draft of proposed changes. An advisory committee is convened for the purpose of examining the proposed changes prior to formally proposing a rule change. The committee may consist of representatives from EPA; Missouri departments of Health, Conservation, Agriculture and Transportation; various environmental

interests as well as the state's mining, manufacturing and agricultural interests; and other parties known to be interested. Municipalities, other interested parties and those listed meet to engage in dialogue leading to a consensus among committee members. The committee is asked to comment on needed changes and to comment on changes suggested by staff. The staff attempts to reach an understanding of the issues involved. Given the diversity of views and backgrounds of the committee, this is not always possible.

As required for all Missouri rules, the Water Quality Standards are contained in the Missouri Code of State Regulations. The Secretary of State's Administrative Rules Division establishes procedures for promulgating, rescinding and amending rules. These procedures mandate publication of a proposed rule or rule change in the Missouri Register. The Missouri Register is distributed biweekly to a list of some 700 subscribers. Also, the Commission staff maintains a list of about 350 individuals or groups who have asked to be informed of water pollution control rule actions; all proposed rules are distributed to that group. Announcements of Clean Water Commission meetings and hearings are also available on the Internet. All rules must be submitted initially to the legislature's Joint Committee on Administrative Rules for approval.

In addition to staff's proposed changes, the process of developing a proposed rule includes the solicitation of input on other changes, such as existing-use designations for individual waters. A public hearing before the Clean Water Commission is held on proposed changes to the standards. The commission is a six-member, bipartisan policy-making body representing various interests prescribed in Missouri's Clean Water Law. The commission must adopt rules and amendments before they are submitted to the Administrative Rules Division as a final rule.

Following public testimony at the hearing, the staff summarizes all comments and presents revised recommendations to the commission. The commission may do the following; approve only specific parts of the proposed rule, direct the staff to make specific changes prior to approval, request that the advisory committee reconvene to consider changes, direct staff to further study the impact of proposed changes and resubmit the proposed rule for consideration at a later date, or take other action as it deems appropriate.

A fiscal note estimating the cost of a rule change to public and private entities is required by Administrative Rules. Following approval, the amendments are published as a final rule in the Missouri Register and then published in the Code of State Regulations (CSR), whereupon they become effective.

Below are tables for beneficial use support, the pollution source and the listing of contaminants for Missouri streams:

Table 1: Beneficial Use Support Status of Missouri Classified* Waters

Status	Stream Miles	%	Lake Acres	%
Full support	11,132.9	51	132,002	45
Full but threatened	224.7	1	143,792	49
Partial support	10,012.5	45	11,547	4

Not supported	476.8	2	5,894	2
Not assessed	219	1	0	0

Full support: Water quality meets the needs of all uses that Missouri recognizes for a particular water body, such as:

- protection of fish and other aquatic life (the water quality does not interfere with the ability of aquatic life to live, feed and reproduce),
- livestock and wildlife watering (the water will not cause disease or injury to livestock and wildlife using the water for drinking),
- drinking water supply (the water meets all state and federal standards as a drinking water supply source water),
- swimming (the water will not cause disease or injury to swimmers or others participating in water-based recreation who may accidentally swallow small amounts of water),
- irrigation (the water will not cause disease or injury to crops) or industrial water supply (the water will not cause excessive corrosion or mineral deposits in industrial piping and boilers),
- fish consumption (fish are safe to eat), and
- boating and canoeing.

Threatened: Water quality is presently adequate to maintain all recognized uses, but, if harmful trends continue, only partial support may exist in the future.

Partial support: Water quality has been impaired to the point that at least one of the recognized uses is affected.

Not supported: Water quality is seriously affected to the point that at least one recognized use of the water body has been lost.

Not assessed: Streams in some urban and rural watersheds are believed to be significantly different in land use from monitored streams in their region so that their quality cannot be accurately inferred from monitored streams.

NOTE: In this report, "impaired" waters refers to waters rated as partial support or not supported.

** There are 21,977.8 miles of classified streams (permanently flowing streams or streams that maintain permanent pools during dry weather) and approximately 30,000 miles of unclassified streams (streams that are without water during dry weather). There are 292,204 surface acres of classified lakes. The number of surface acres of small unclassified lakes has not been estimated.*

Table 1A: Individual Use Support Summary for Classified Streams

Beneficial Use	Size Assessed	Full Support	Partial Support	Not Supported	Not Assessed	Use N/A

Streams (Miles)						
Aquatic Life	21,600.2	11,398.9	9,973.3	228.1	458.1	0
Fish Con-sumption	21,836.5	21,671.4	8.2	156.9	221.8	0
Swimming	5,400.5	5,348.8	4.3	47.4	0	16,657.8
Drinking Water	3,185.7	2,975.2	0	210.5	0	18,872.6
Lakes (Acres)						
Aquatic Life	293,235	291,455	50	1,730	0	0
Fish Con-sumption	293,235	292,295	0	940	0	0
Swimming	261,847	261,715	0	132	542	30,846
Drinking Water	89,857	85,287	1,478	3,092	0	203,378

Table 2: Major Water Pollution Sources in Missouri Classified Waters
(Stream Miles or Lake Acres Impaired)

Source	**Stream Miles Impaired**	**% of Total Miles**	**Lake Acres Impaired**	**% of Total Acres**
Agriculture	7,624.4	34%	4,566	2%
Crop	7,602.3	34%	4,566	2%
Production/Grazing Pasture	8.5	*	0	
Hydromodification	3,758.9	17%	11,780	4%
Channelization	3,697.9	17%	11,780	4%
Flow Regulation/ Modification	39.0	*		
Streambank Modification	21.0	*		
Mining	179.7	1%		
Municipal and other Domestic Point Sources	93.9	*		
Urban Runoff and Construction	56	*	825	*
Industrial Point Sources	2.7	*		
Landfills	0.3	*		
Recreational Activities	1	*		
Atmospheric Deposition	5.5	*		
Natural Sources	162.5	1%	70	*
Unknown	2	*	615	*

** less than 1%*

Table 3: Major Contaminants in Missouri Classified Waters

Contaminant	Stream Miles Impaired	% of Total Miles	Lake Acres Impaired	% or Total Acres
Sediment	7,478.1	34	--	--
Habitat Degradation	3,629.4	16	--	--
Organic Enrichment/Low Dissolved Oxygen	55.9	*	1,780	1
Metals	337.5	2	10,000	3
Bacteria	45.5	*	615	*
Ammonia	18.2	*	--	--
Pesticides	24	*	3,894	1
Suspended Solids	17	*	--	--
Nutrients	4.3	*	1,478	15
TDS: Sulfate, Chloride	47	*	--	--
Flow Alterations			50	*
Toxic Organic Chemicals (other than pesticides)	39.2	*		
pH	14.8	*		
Thermal Modification	1.1	*		
Unknown	19.7	*		

* *less than 1%*

NOTE: Many stream miles in Missouri are affected by more than one pollution source or pollutant. Therefore, total miles or acres in Tables 2 and 3 can exceed miles or acres in Table 1.

Sources of Technical Assistance

Missouri Department Natural Resources, Division of Environmental Quality, Water Pollution Control Program
Planning Section
P.O. Box 176
Jefferson City, Missouri 65102
1-800-361-4827 or (573) 751-1300

U.S. Environmental Protection Agency, Region 7
Water Quality Standards Coordinator
726 Minnesota Avenue
Kansas City, Kansas 66101
(913) 551-7441

References

- Clean Water Act, Section 303, Adoption of WQS, Section 304, Water Quality Criteria and Measurement and 40 CFR Part 131 amended.
- Missouri Clean Water Law Section 644.116 RSMo, Rules and Regulations to be adopted by the Clean Water Commission, Section 644.041 RSMo, Effluent Regulations to be Promulgated.

- The department's Water Quality Standards, Division 20- Clean Water Commission, Chapter 7 – Water Quality, Effluent Regulations,10 CSR 20-7.015 and Water Quality Standards, 10 CSR 20-7.031.
- *Ambient Water Quality Criteria Series*, EPA #440-5-80-85; *Water Quality Standards Handbook*, Second Edition, August 1994, EPA #823-B-94-005a and -005b Appendices with references.
- *Whole Effluent Policy (WET) Control Policy: Policy for the Development of Effluent Limitations in NPDES Permits Control of Effluent Toxicity for the Protection of Aquatic Life*, July 1994, EPA #833-B-94-002.
- *Technical Support Document for Water Quality Based Toxics Control*, March 1999, EPA #505-2-90-001.
- *Water Quality Criteria*, 1986, EPA #PB87-226759, contains summaries of all contaminants and conditions for which EPA has developed criteria recommendations (the current edition is called the "Gold Book" and may be obtained for a fee from the National Technical Information Source (NTIS), call 1-800-553-NTIS. These publications and other technical sources for Water Quality Standards including Needs and Assessments, Construction Grants, Finance, Treatment, Pollution Prevention, Permitting etc. can be accessed through http://www.epa.gov/owm/catpub.htm and http://www.epa.gov/ost, the Office of Science and Technology Web site.
- *Missouri Water Quality Report 2000*
- Missouri's 2000 Strategy Document and the 2002 303(d)Listing Methodology and most recent documents http://www.dnr.state.mo.us/deq/wpcp/wpc-tmdl.htm.

- Methodology for the Development of the 2002 Section 303(d) List in Missouri http://www.dnr.state.mo.us/deq/wpcp/wpc-tmdl.htm included in section II. In the Methodology Document, are the 303(d) Listing considerations; adding to the list, deleting from the list, placement of waters within categories, prioritization of waters for TMDL development and resolution of interstate and international disagreements.

- Environmental Protection Agency documents may be ordered from EPA's National Service Center for publications or at the following: http://www.epa.gov/epahome/publications.html or by calling 1-800-490-9198

- Additional federal Acts requiring assessment of risk to the environment and biological criteria for the integrity of surface waters, i.e. the *Toxic Substances Control Act* of 1976, etc., for assessing ecological impairments may be found in Risk Assessment Guidance for Superfund-Environmental Evaluation Manual, 1989. Another source providing valuable tools to conserve listed species and protect critical habitat, directly impacted by Water Quality Standards violations, is Section 7 of the *Endangered Species Act*; the Consultation Handbook, Procedures for Conducting Consultation and Conference Activities Under Section 7 of the *Endangered Species Act*, March 1998, ISBN 0-16-049596-2.